

SIP LOGBOOK REPORT

LOG BOOK**WEEK NO: 1-2**

| WEEK NO | DATE | BRIEF DESCRIPTION OF DAILY ACTIVITIES |
|----------------|---------------------------------------|---|
| 1 | 2nd September 2019 | <ul style="list-style-type: none">• Modified Module 1; Grabbing Scene to be in multiplayer mode |
| | 3rd September 2019 | <ul style="list-style-type: none">• Create name for each player and make it appear in the scene |
| | 4th September 2019 | <ul style="list-style-type: none">• Make each player`s controllers appear in the scene at the runtime• Fixed the movement data error |
| | 5th September 2019 | <ul style="list-style-type: none">• Present the Module to Dr. Fairuz• Introduction to Module 3; Assembly Furniture |
| | 6th September 2019 | <ul style="list-style-type: none">• Fixed Module 1 according to Dr. Fairuz`s opinions and feedbacks |
| 2 | 9th September 2019 | <ul style="list-style-type: none">• Find research paper on Assembly Object and Snapping Object |
| | 10th September 2019 | <ul style="list-style-type: none">• Do research on SketchUp as for modelling |
| | 11th September 2019 | <ul style="list-style-type: none">• Design the environment for Module 3 |
| | 12th September 2019 | <ul style="list-style-type: none">• Plan on the implementation Snapping to the Module |
| | 13th September 2019 | <ul style="list-style-type: none">• Environment created and adding code for integration with SteamVR |

| Logbook Weekly Evaluation by HOST COMPANY SUPERVISOR | | | | | |
|--|---|---|---|---|-------|
| Instruction to Host Company Supervisor Please refer to the student's to assess his/her performance. Please award the scores based on the range below: | | | | | |
| Student's Score | Beginning (<2.0) | Developing (2.0 to <3.25) | Accomplished (Rare) (3.25 to <4.0) | Exemplary (Exceptionally Rare) (4.0 to 5.0) | Score |
| Initiative & Creativity | Had little observable drive and did not have new ideas | Some observable drive and some new ideas | Mostly self-starter and sometimes sought new challenges and offered new ideas | Always a self-starter and consistently sought new challenge and offered new creative ideas | /5 |
| Task Accomplishment & Commitment | Partially accomplished given task despite full supervision | Accomplished given task but with full supervision | Accomplished given task but with some supervision | Accomplished given task with very minimum supervision | /5 |
| Attendance & Punctuality | Frequently absent and always late | Sometimes absent and sometimes late | Never absent and almost always on time | Never absent and always on time | /5 |
| Attitude & Self Control | Unable to demonstrate positive attitude and hardly maintained self-control under pressure | Occasionally demonstrated positive attitude and occasionally maintained self-control under pressure | Sometimes demonstrated positive attitude and maintained self-control under pressure | Consistently demonstrated positive attitude and consistently maintained self-control under pressure | /5 |
| Total Score | | | | | /20 |
| Comments: | | | | | |
| Host Company Supervisor's Signature & stamp: | | | | | |
| Name & Designation: | | | | | |
| Date: | | | | | |

(make copies if necessary)

Objective(s) of the activities :

- Make Module 1;Grabbing Scene to be in multiplayer mode

Contents :

I get the Module 1 draft from Amiera and modified a few things to make the module in multiplayer mode

There are a few changes that I made :

1. Change the Player Prefab and use the Camera Rig as player
2. Attach cube at camera as the Avatar
3. Insert Hand Script in Controller Right and Left
4. Uncheck Model in Controller Object
5. Add the Photon Transform View and drag Player script in it
6. Add a few empty object in the Controller Object like HoverPoint and Object Attachment Point for Hand script

I tested the project and when other player join the same room , they can see each other but there is a problem where the movement of two players is the same. I figured out that the network is not able to differentiate the player.

Objective(s) of the activities :

- Create name for each player and make it appear in the scene
- Let the network differentiate the player

Contents :

I figured out the error; the cube (avatar) is make the same movement as in both are the same player. I discussed with Amiera and figured out that the network cannot differentiate and come out with solution. I let the player created their own name as player and make it appear in the scene.

I created the User Interface for player to enter their name and a button to load the scene. Then, I add a few code for them to integrate with the Photon Network.

I tested the scene and when two player enter the same room (scene), they can see each other and the movement of the cube follow the movement of each player correctly. The name of the player that they entered before, also appeared in the scene but I encountered a few problems.

There is a problem where, it spawn the same name in the textfield but the cube is following each player movement correctly. It is confusing since the debug shows each player name correctly but not in the user interface textfield.

There is also a problem on the movement data where when the player grab one small cube, the network delays the movement data and other player cannot see what other player activities.

Objective(s) of the activities :

- Make each player`s controllers appear in the scene at the runtime
- Fixed the movement data error

Contents :

I discussed with my teammate regarding the error and do some research on movement of data through Photon Network.

I followed a few tutorials on internet to understand the error and figure out the solution. Dr. fairuz also suggested to test it out on Photon Cloud first to see the connection and movement of data between players in virtual environment.

I also tried to let each player to see their controller as one of the solution so that they can see each other`s activities.

Objective(s) of the activities :

- Present the Module to Dr. Fairuz
- Introduction to Module 3; Assembly Furniture

Contents :

We had a brief meeting with Dr. Fairuz to update regarding the Module. We tested them and we got a few feedbacks from him.

We also had been introduced to the new Module which is Module 3. Module 3 is about creating an assembly furniture application like IKEA in virtual environments. Dr. Fairuz gave us an example of one of furnitures in IKEA.

We studied the example and find a few research paper on assembling object in virtual environment for our better understanding.

Objective(s) of the activities :

- Fixed Module 1 according to Dr. Fairuz`s opinions and feedbacks

Contents :

I fixed a few error in the Module 1 according to Dr Fairuz feedbacks. He asked to fixed on improving the delay of data; send and received from each player.

I tried to restart the Photon server and adding the Manager script which containing coding for integrating the player through network in the scene.

In runtime, the player already able to see each other activities in the room but sometimes the player get out of the room unexpectedly due to lactency.

For Module 3, I did a research on the concept of assembly object in virtual environment and come across the snapping concept and two-handed manipulation object.

Objective(s) of the activities :

- Find research paper on Assembly Object and Snapping Object

Contents :

I read a few research paper on assembly object and snapping object in virtual environment.

The devices 102 - 106 can execute a client operating system and one or more client applications that can access , control , and / or display VR content on a display device included in each respective device , or in a connected device .

both controllers 112 and 114 can be viewed and / or tracked in system 100 in order to facilitate interaction in the VR space .

As shown in FIG . 1 , the VR application 110 includes a tracking module 116 , an orientation module 118 , an anchor point generator 120 , and a snap to location module 122 . The tracking module 116 may access light sensors , audio sensors , image sensors , distance / proximity sensors , positional sensors and / or other sensors to track a physical position of the user and / or the controller 112 or 114 in the real world , or physical environment relative to the virtual environment . The orientation module 118 may access any number of memory storage and / or sensors described herein to determine particular orientations of controllers , users , virtual objects , and areas associated with moving objects within the VR space . The anchor point generator 120 may be configured to identify and / or define anchor points corresponding to one or more locations in which a particular virtual object may be scaled or otherwise manipulated

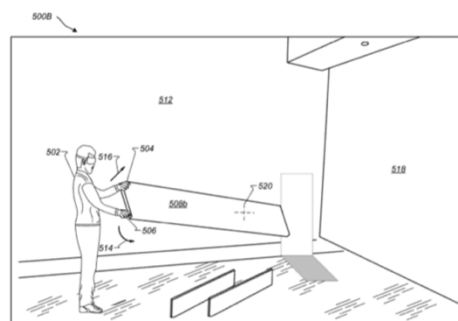
In some implementations , the HMD device 106 may include one or more cameras (not shown) to capture still and moving images . The images captured by such cameras may be used to help track a physical position of the user and / or the controllers 112 or 114 in the real world , or physical environment relative to the VR space

For example: The VR system 108 may represent a server device .The VR application 110 can be configured to execute on any or all of devices 102 , 104 , 106 , and 108 and be controlled or operated upon using controllers 112 or 114.

FIG. 1

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examples of a user accessing a VR space to perform virtual object manipulations



This research paper suggested a few steps for designing the assembly object Module.

1st step:
flow chart diagramming one embodiment of a process to enable a user to manipulate content in a VR space .
Patent Application Publication Oct. 4, 2018 Sheet 9 of 12 US 2018/0284969 A1

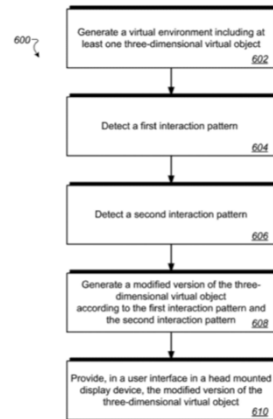


FIG. 6

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2nd Step:
flow chart diagramming one embodiment of another process to modify 3D image content in a VR space .

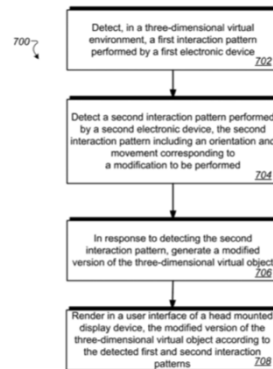


FIG. 7

Object snapping is providing a way to specify precise locations on objects whenever you are prompted for a point within a command.

block diagram depicting an example of snapping virtual objects to locations .

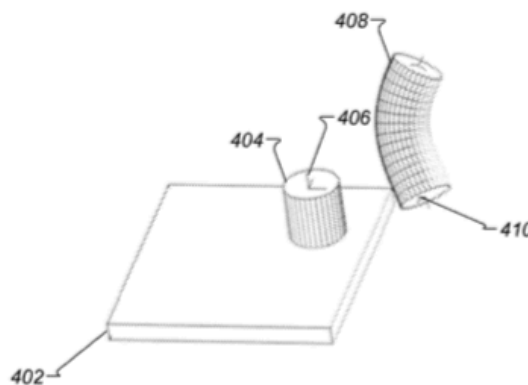


FIG. 4

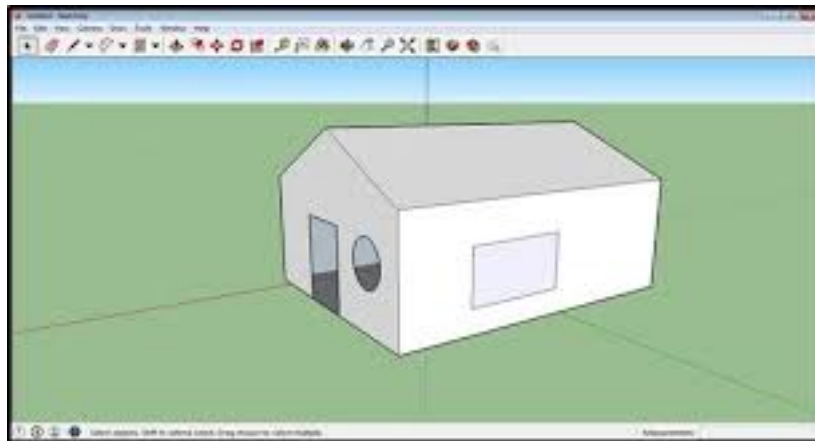
Objective(s) of the activities :

- Do research on SketchUp as for modelling

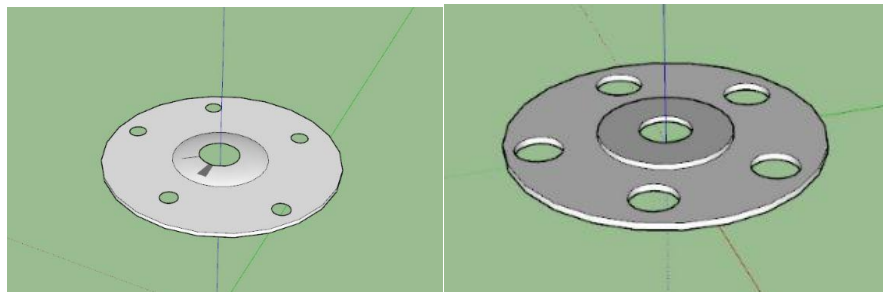
Contents :

SketchUp is a 3D modeling computer program for a wide range of drawing applications such as architectural, interior design, landscape architecture, civil and mechanical engineering, film and video game design.

We can use the SketchUp to do modelling for the component object in Module 3.



These are the examples of the component model.



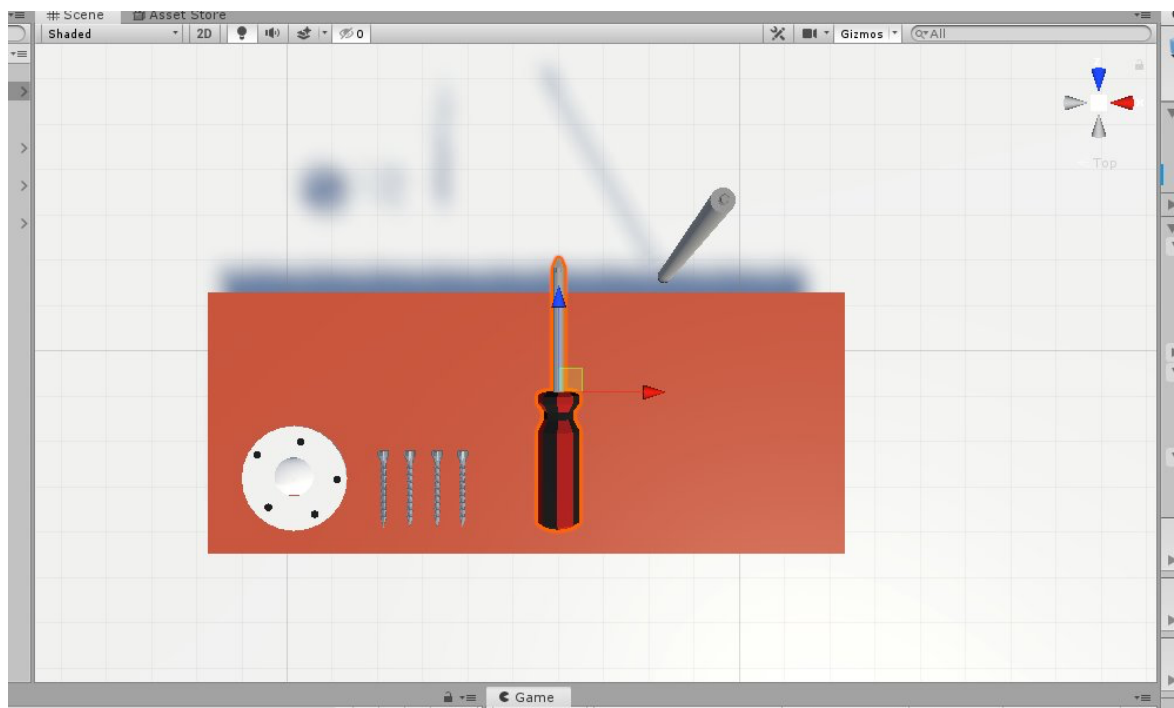
Objective(s) of the activities :

- Design the environment for Module 3
- Plan on the implementation Snapping to the Module

Contents :

These are the components that we got from Asset Store in Unity and SektchUp models. We got a sample furniture given by Dr. Fairuz which is "Adils" furniture in IKEA. We need to let the player assemble the furniture in virtual environment so that it can helps the player feels it like in the real world.

These are the designs:



Objective(s) of the activities :

- Environment created and adding code for integration with SteamVR

Contents :

Then, I added a few things to integrate with SteamVR.

1. Add camera rig and attach cube to camera
2. Add Hand script in the controller object
3. Tag all object that need to be interacted with the controller with "Interactable" tag
4. Add interactable script to all objects with Interactable tag
5. Add fixed Joint and RigidBody in both controller
6. Add RigidBody and box collider in the object